

claims 11, 12, 15, and 16 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants wish to thank the Examiner for taking the time to speak with Applicants' representative during the telephone interview on April 15, 2004. As suggested by the Examiner, Applicants have prepared and submitted this Request for Reconsideration in response to the final Office Action. The discussion included in this Request is consistent with the topics discussed and agreements reached during the telephone interview.

Applicants respectfully traverse the rejection of claims 1, 3, 4, 6, 8, and 10 under 35 U.S.C. § 102(e) as being anticipated by Shloush et al. for at least the reason that Shloush et al. fails to disclose every claim element. For example, independent claim 1 recites a combination of elements including, *inter alia*, a scalable motion controller including means for inserting and removing one or more motion control processors from the scalable motion controller. Shloush et al. fails to disclose a means for inserting or removing motion control processors from a motion controller unit. There is no disclosure in Shoush et al., in fact, which indicates the number of *processors* within the "motion controller 30" of Shloush et al. can be varied.

Motion control systems consistent with the present invention can include motion units 110 and at least one controller unit 150. As shown in Fig. 1, motion units 110 may include a motor 120, an encoder 130, and an amplifier 140. Motion units 110 receive command signals from controller unit 150 and translate the command signals into movements at their corresponding motor 120. The command signals issued by controller unit 150 are generated by motion control processors disposed within

controller unit 150. (Spec., ¶ 18.) For each motion unit 110 included in the motion control system, there is a corresponding motion control processor disposed within a controller unit 150 that is responsible for providing command signals to the motion unit. In other words, an N-axis motion control system includes N processors for generating command signals to N motors. (Spec., ¶ 4.)

Because the number of motion units required for a particular application may vary, the number of processors needed also may vary. In traditional systems, each controller unit contained a fixed number of processors. (Spec., ¶ 5.) There was no way to vary the number of processors included in a single controller unit. Thus, traditional systems nearly always operated with more processors in the controller unit than was necessary to control the number of motion units present in the system. (*Id.*)

In a scalable motion controller consistent with the present invention, the number of processors included in the controller unit may be tailored to exactly match the number of motion units (and, therefore, the number of motors) included in the motion control system. For example, as noted in claim 1, a scalable motion controller consistent with the present invention may include “means for inserting and removing one or more motion control processors from the scalable motion controller.” Such a controller unit can be used to avoid the unnecessary costs associated with having unused processors present in the controller unit.

In contrast to the motion controller of claim 1, the control unit 30 of Shloush et al. does not include a means for inserting and removing one or more motion control processors from the scalable motion controller. Instead, the control unit 30 of Shloush et al. is an example of a traditional controller unit, as described in paragraph 5 of

Applicants' specification, that includes a fixed number of processors. While the number of drive units 40, 50, etc. of the Shloush et al. device may be varied, there is no disclosure in Shloush et al. that indicates that the number of processors in control unit 30 can also be varied. Thus, like the traditional controller units described in Applicants' specification, the Shloush et al. controller unit 30 will nearly always operate with more processors in the controller unit than needed to control the number of drive units 40, 50, etc. present in the system.

Shloush et al. also fails to disclose every element of independent claim 4. For example, claim 4 recites, *inter alia*, a motion unit comprising a motor connected to an encoder and an amplifier and a scalable motion controller connected to the motion unit, wherein the motion controller comprises means for inserting and removing one or more motion control processors from the scalable motion controller. While Shloush et al. discloses motion units 40, 50, etc. associated with a motor and including an amplifier and also discloses a controller unit 30 connected to the motion units, Shloush et al. fails to disclose that controller unit 30 includes means for inserting and removing one or more motion control processors from the scalable motion controller. Rather, as discussed above, there is no disclosure in Shloush et al. indicating that the controller unit 30 has anything other than a fixed number of processors.

Because Shloush et al. fails to disclose every element of independent claims 1 and 4, upon one of which claims 3, 8, and 10, ultimately depend, the Section 102(e) rejection of these claims is improper and should be withdrawn.

Applicants also respectfully traverse the rejection of claims 2, 5, 7, 9, 13, and 14 under 35 U.S.C. § 103(a) as being unpatentable over Shloush et al. and Brekosky et al.

No *prima facie* case of obviousness has been established with respect to claims 2, 5, 7, 9, 13, and 14 for at least the reason that no combination of Shloush et al. and Brekosky et al. teaches or suggests every claim element. For example, claims 2, 5, 7, and 9 include, *inter alia*, means for inserting and removing one or more motion control processors from the scalable motion controller, and claims 13 and 14 include, *inter alia*, a scalable motion controller that has a plurality of dip sockets arranged for inserting and removing one or more motion control processors. Shloush et al. fails to disclose or suggest a plurality of dip sockets or other means arranged for inserting and removing one or more processors from the scalable motion controller. Shloush et al., in fact, fails to disclose or suggest modifying controller 30 in any way to accommodate more or fewer processors.

Like Shloush et al., Brekosky et al. also fails to disclose or suggest a plurality of dip sockets or other means arranged for inserting and removing one or more motion control processors from the scalable motion controller. While Brekosky et al., discloses "terminal receiving cavities 30" for receiving male terminals 32 of other connectors 4, 6, 14, 15, or 16, Brekosky et al. fails to disclose or suggest that terminal receiving cavities 30 could be included in a motion controller for adding and removing processors. In fact, in the device of Brekosky et al., terminal receiving cavities 30 are provided for the sole purpose of enabling stacking of multiple circuit boards. (col. 3, lines 11-20; col. 4, lines 15-19). Brekosky et al., which fails to even discuss motion control processors, fails to disclose inserting or removing motion control processors from terminal receiving cavities 30 and fails to suggest or provide motivation for providing the terminal receiving cavities

in a controller unit for the purpose of enabling the insertion or removal of processors from the controller unit.

Because neither Shloush et al. nor Brekosky et al., taken together or singly, teaches or suggests every claim element, no *prima facie* case of obviousness has been established with respect to claims 2, 5, 7, 9, 13, and 14. Accordingly, the Section 103(a) rejection of these claims is improper and should be withdrawn.

In view of the foregoing remarks, Applicants submit that the claimed invention is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicants therefore request reconsideration of the application and timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: April 30, 2004

By:



Darren M. Jiron
Reg. No. 45,777